

CORRECTED DESCRIPTION OF THE DRAWINGS

[0001] FIGURE 1 is a fragmentary underside perspective of a conventional airdam on the front of a vehicle;

[0002] FIGURE 2 is a schematic computational fluid dynamics (CFD) simulation in sideview of the diversion of air flow by the conventional airdam;

[0003] FIGURE 3 is a fragmentary underside perspective of the virtual airdam jet configuration of this invention;

[0004] FIGURE 4 is a schematic CFD simulation in sideview of the air flow for the virtual airdam;

[0005] FIGURE 5 is a chart showing the drag reduction of the virtual airdam coefficient of drag (CD) as a function of front end airflow (FEAF) or velocity cubic meters per minute (CMM) for the conventional airdam versus the virtual airdam; and

[0006] FIGURE 6 is a schematic showing of a jet airdam in a fuel cell vehicle.

Remarks

Claims 1-15 are pending in the application. Claims 1, 3-7 and 9-15 are objected to. Claim 13 and 14 are rejected under 35 U.S.C. §112; claims 1, 4, 5, 13 and 15 are rejected under 35 U.S.C. §102(b) as anticipated by Englar (US 5,863,090); claims 1, 3-5, 7 and 9-15 are rejected under 35 U.S.C. §102(b) as anticipated by Kretschmer et al (US 4,673,206); and claim 6 is rejected under 35 U.S.C. §103(a) as unpatentable over Kretschmer et al in view of O'Connell (US 6,223,843). Claims 1-3, 7-9 and 12-14 are currently amended.

Applicants Respond Seriatum to Items Numbered in the Detailed Action

3. A replacement sheet of drawings is attached to correct Figure 1 by adding the legend –Prior Art—and is believed to overcome the Examiner's objection to the drawings.

4. The specification has been amended to provide an explanation of the terms “CFD”, “CD”, and “CMM”.

Claim Rejections – 35 U.S.C. §112

5. Claims 13 and 14 are rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claim 13 has been amended as suggested by the Examiner to change “whereby” to “thereby.”

Claim 14 has been amended to claim structure which does produce a change in air flow volume “thereby to increase volumetric airflow for cooling in said engine compartment.”

Claim Rejections – 35 U.S.C. §102

6. Claims 1, 4 and 5 are rejected under 35 U.S.C. §102(b) as being anticipated by Englar (US 5,863,090).

The Examiner is incorrect when he calls Englar's aerodynamic surface (17) a "conduit." The conduit is Englar's plenum 21 and the airflow 24 from plenum 21 is upwardly, as clearly shown in Englar's Fig. 2 and described in col. 6, lines 47-59. In response to such air flow 14, only a force 23 is imparted downward, not a "curtain of air" as claims 1, 4 and 5 require.

7. Claims 1 and 3-5 are rejected under 35 U.S.C. §102(b) as being anticipated by Kretschmer et al (US 4,673,206).

Claim 1, and accordingly dependent claims 3-5 have been amended so that the "conduit" includes "an outlet extending transversely substantially across the forward end of the vehicle (which is) operable to project a curtain of air – toward said support surface."

Random House Webster's College Dictionary (2001) defines "across" inter alia as: 1. from one side to the other of : a bridge across a river.

Kretschmer's Fig. 4 shows a discharge opening (7) and describes it at col. 3, lines 4-6 as

"The greatest width E of the discharge opening 7 is to correspond approximately to the width F of the wheel 3."

and at col. 2, line 53 as "exclusively within the area of the wheels 3." Thus Kretschmer's teaching with Webster's definition of "across" fails to anticipate an "outlet extending transversely substantially – across the forward end of the vehicle--", as required by claims 1 and 3-5.

8. Claims 7 and 9-11 are rejected under 35 U.S.C. §102(b) as being anticipated by Kretschmer et al (US 4,673,206).

Kretschmer et al. may have a forward end including a conduit (4) spaced from a support surface, but as the claims have been amended, Kretschmer's conduit does not include an "outlet extending transversely substantially across the forward end of the vehicle ..." (emphasis added)

Moreover, Random House Webster's College Dictionary (2001) defines "across" inter alia as: 1. from one side to the other of: a bridge across a river.

Kretschmer's Fig. 4 shows a discharge opening (7) and describes it at col. 3, lines 4-6 as:

"The greatest width E of the discharge opening 7 is to correspond approximately to the width F of the wheel 3."

and at col. 2, line 52 as "-- exclusively within the area of the wheels 3". Thus Kretschmer's teaching with Webster's definition of "across" fails to anticipate an "outlet extending transversely substantially -- across the forward end of the vehicle --" as required by claims 7 and 9-11.

Amended claim 7 and accordingly dependent claims 9-11 are believed to patentably distinguish Kretschmer et al.

9. Claim 12 is rejected under 35 U.S.C. §102(b) as being anticipated by Kretschmer et al (US 4,673,206).

Claim 12 has been amended so that it is the "jet-forming outlet" which is "substantially across the forward end of said vehicle" rather than the "conduit" and is believed to patentably distinguish Kretschmer. As aforesaid Kretschmer et al's discharge opening (7) is "exclusively within the area of the wheels 3."

10. Claims 13-15 are rejected under 35 U.S.C. §102(b) as being anticipated by Kretschmer et al (US 4,673,206).

Claim 13 and accordingly dependent claims 14 and 15 have been amended so that it is the "outlet opening" which is "configured to extend transversely substantially across said front end (of the movable support on a roadway) to project a jet of air in a downward direction toward said roadway."

As aforesaid Kretschmer et al's discharge opening (7) is "exclusively within the area of the wheels 3."

11. Claims 13 and 15 are rejected under 35 U.S.C. §102(b) as being anticipated by Englar (U.S. 5,863,090).

The Examiner is incorrect when he calls Englar's aerodynamic surface (17) a "conduit." The conduit is Englar's plenum 21 and the airflow 24 from plenum 21 is upwardly, as clearly shown in Englar's Fig. 2 and described in col. 6, lines 49-50. In response to such airflow 24, only a force 23 is imparted downward, not "a jet of air --- toward said roadway, thereby to form a virtual airdam.--" as required by claims 13 and 15.

Claims 13 and 15 are believed to patentably distinguish Englar.

Claim Rejections - 35 U.S.C. §103

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kretschmer et al as applied to claim 1 in view of O'Connell (US 6,223,843).

Random House Webster's College Dictionary (2001) defines "across" inter alia as: 1. from one side to the other of: a bridge across a river.

Kretschmer's Fig. 4 shows a discharge opening (7) and describes it at col. 3, lines 4-6 as:

"The greatest width E of the discharge opening 7 is to correspond approximately to the width F of the wheel 3."

and at col. 2, line 52 as "-- exclusively with in the area of the wheels 3. Thus Kretschmer's teaching with Webster's definition of "across" fails to anticipate an "outlet extending transversely substantially -- across the forward end of the vehicle -- and operable to project a curtain of air -- toward said support surface --."

O'Connell's teaching regarding a motor vehicle with engine (12), fuel cell (3) and radiator (62) does not fill the void in Kretschner. O'Connell also lacks a "conduit" which includes "an outlet extending transversely substantially

across the forward end of the vehicle” which is “operable to project a curtain of air -- toward said support surface.”

Allowable Subject Matter

Applicant appreciates that claims 2 and 8 contain allowable subject matter. The amendments to claims 2 and 8 and to the claims 1 and 7 from which they depend respectively should make claims 2 and 8 still allowable.


CONCLUSION

This Amendment is believed to be fully responsive to the Office Action mailed August 26, 2005. The prior art made of record and not relied upon has been considered. The remarks in support of the rejected claims are believed to place this application in condition for allowance, which action is respectfully requested.

Please charge any fees associated with this amendment to deposit account 07-0960.

Respectfully submitted,

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